

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Dimitri P. Zafiroglu      Group Art Unit: 1771  
Application No.: 10/611,470      Examiner: Mathew D. Matzek  
Filed: July 1, 2003      Attorney Docket No.: SWZ-010  
Customer No.: 29626

For: "TEXTURED COMPOSITE MATERIAL"

DECLARATION OF DAVIS LEE, Ph.D.  
PURSUANT TO 37 C.F.R. 1.132

I, Davis Lee, hereby declare and make the following statements:

1. I reside at 338 Medley Ct Kennesaw GA 30152
2. I received a Bachelor of Science degree from Georgia State Univ in 1977  
and a Doctorate from Emory University in 1981 in the field of  
Synthetic Organic Chemistry
3. I am an inventor in see attached
4. I was employed by Debat Paper. My last position Director R&D & Quality
5. I am currently working as a consultant for DZS Carpets.
6. I have published the following articles:
  - a. Davis E. Lee, Ph.D., "Surfactants in Spin Finishes," IFJ, pp. 94-100 (Aug. 1991).
  - b. - see attached
  - c.
7. I have no financial interest in the above referenced patent application, and no financial interest in DZS, LLC, the assignee of the above referenced patent application or in a related company. Currently, I provide consulting service for DZS Carpets, LLC, which is related to DZS, LLC.
8. On February 8, 2002, Mr. Dimitri Zafiroglu had shown to me samples of a floor covering that he had invented, as evidenced by Mr. Zafiroglu's letter dated February 26, 2002 (Exhibit 1), which memorializes our meeting on February 8, 2002. The samples included embossed composites with fabric face layers, an

adhesive layer and cushioning backings of needle-punched felts. The embossed composites had an aesthetic pattern on their faces caused by the embossing patterns. Blunt projections in the embossing tools created recessed areas, where the binder was melted. A description of the samples shown to me can be found on pages 5-7 of the presentation made by Mr. Zafiroglu.

9. Based on my experience in the floor covering industry and based on my observations of these samples, I believe that Mr. Zafiroglu's invented carpets are superior to the existing floor coverings on the market for the following reasons:
  - a. Unlike the known pile carpets or laminated fabric composites, the invented carpets do not unravel when cut. This allows the invented carpets to be cut directly into "carpet tiles", or, if preferred, to be simply laid on the floor as "wall-to-wall carpet". Installing a fiber-faced product on a floor either as a "tile" or as a "wall to wall carpet", without the generally required heavy reinforcement on the backside, or the special seaming tools or reinforcement at the seams, or the plastic encasement of the edges, is a new attribute, unavailable in the flooring market .
  - b. The apparent closely-spaced embossing locks the fibers on the face of the composite, allowing the face not only to be unexpectedly durable but also to maintain surface softness and to remain unexpectedly resistant to unraveling when cut.
  - c. The invented carpets work well as they also unexpectedly do not warp or excessively contract or expand on the floor despite the lack of the reinforcing layers currently required for laminates, or the dense and heavy backings currently required for laminates or pile structures, or the stretching required for pile structures lacking heavy backings.. This allows the invented carpets to be lightweight and renders installation easy.
  - d. To the best of my knowledge, Mr. Zafiroglu's design solves the problems faced by a previous textile composite floor covering. This product is known as the Solenium product from Interface Company, LaGrange, Georgia. The Solenium product was made from a flat-woven face fabric of poly trimethylene teraphthalate (PPT) yarns. Most of its ¼ inch thickness was

made from a high density urethane backing, adding substantial weight. The adhesive layer between the face woven layer and the backing was reinforced with a stabilizing layer of fiberglass. Despite all reinforcements which solidified the surface and reduced cushion, the Solenium product suffered from the unraveling problem, and was removed from the market in late 2001 for redesign.

- e. To the best of my knowledge, the Solenium product has not been re-introduced in the market.

I declare further that all statements made herein of my own knowledge are true; that all statements made herein on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date:

6/14/2007

By:

D. Lee  
Davis Lee

## Davis E. Lee, Ph.D.

3138 Medley Ct • Kennesaw, GA 30152  
Cell (770) 367-8539 • davis\_lee@mindspring.com

### INTERESTS

New product development in polymer, textile, material and surface sciences.

New product strategies for businesses.

Technology brokering.

### SUMMARY OF QUALIFICATIONS

Experienced in designing, developing and directing a new offering development competency.

Delivered over 20% of corporation gross profit from new products to a \$500MM company.

Experienced in developing and executing new business growth strategies.

25 years of experience in new product and business development.

Entrepreneurial business experience.

### PROFESSIONAL EXPERIENCE

**InnovaNet, LLC, Principal** 2006 to Present  
**Consultant, New Offering Development**  
**Kennesaw, GA**

**Director, R&D and Quality Management** 2006  
**Propex Fabrics, Inc., Dalton, GA**

- Led integration of R&D and quality functions for SI Corporation and Propex Fabrics, Inc.
- Responsible for product development and quality management as with the former SI Corporation

**Director, R&D and Quality Management** 2003 to 2006  
**SI Corporation, Dalton, GA**

- Responsible for designing, developing and directing a new product development capability
  - >20% of corporation gross profit delivered from products less than 2 years old 2003-2006
- Responsible for managing Intellectual Property
  - Maintenance of patents, trademarks and copyrights
  - Confidentiality and Joint Development agreements
  - IP litigation
- Responsible for designing, developing and directing a quality management capability
  - Improved customer perceived quality by 70% in less than 3 years
- Responsible for directing the technical service function

**Director, New Business Development** 2001 to 2003  
**SI Corporation, Calhoun, GA**

- Responsible for new business development and technical service for Flooring product line

**R&D Manager** 1995 to 2001  
**E.I. DuPont DeNemours and Co., Inc., Kennesaw, GA**

- Formed and led a new product development team to develop new patented technologies for carpet maintenance and installation

## **PROFESSIONAL EXPERIENCE** - continued

### ***R&D Professional***

1981 to 1995

#### **E.I. DuPont DeNemours and Co., Inc., various locations**

- Worked in 5 different businesses covering a variety of fibers, plastics and chemicals technologies

## **EDUCATION**

- B.S., 1977, Chemistry, Georgia College and State University
- Ph.D., 1981, Synthetic Organic Chemistry, Emory University

## **PROFESSIONAL ORGANIZATIONS**

- American Chemical Society
- Carpet and Rug Institute – Member Health, Environmental and Technical Committee, Member Installation Committee
- Member Carpet Technical Committee of the Consortium for Competitiveness in the Apparel, Carpet, and Textile Industries of Georgia (CCTI)
- Member of External Advisory Board for Georgia Tech School of Polymer Textile and Fiber Engineering
- Member of the Technical Advisory Board of the International Nonwovens and Disposables Association
- Member of the Industrial Advisory Board of the Center for Advanced Engineering fibers and Films, Clemson University
- Member of the Technical Advisory Council of the National Textile Committee

## **HONORS**

- Grant-in Aid of Research – Sigma Xi, The Scientific Research Society, 1980
- Outstanding Young Alumni, Georgia College and State University, 1985
- Engineering Excellence Award, E. I. DuPont DeNemours and Co., Inc., 1997
- Marketing Excellence Award, E. I. DuPont DeNemours and Co., Inc., 1997

## **PUBLICATIONS and PRESENTATIONS**

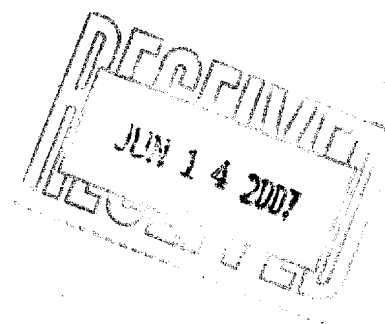
- "4,5-benzo-1,2,4,5-cycloheptatetraene", Journal of Organic Chemistry, vol 42, pp. 3460-2, 1977.
- "Toward the Total Synthesis of Quassin", dissertation, Emory University, 1981.
- "Toward the Total Synthesis of Quassin" Journal of Organic Chemistry, vol 47, pp. 610-15, 1982.
- "Protection of a Substituted Catechol Whose Derivatives are Subject to Steric Labilization" Journal of Organic Chemistry, vol 47, pp. 731-4, 1982.
- "Surfactants in Spin Finishes," International Fiber Journal, August, pp 94-100, 1991.
- "Approach to Installation, Maintenance and Reclamation", 38<sup>th</sup> International Man-Made Fibres Congress, Dornbim Austria, Sept. 1999.
- "Asset Preservation," Buildings Magazine, p. 26, Aug 2000.
- "Using 3P in New Product Development," The Association for Manufacturing Excellence, Annual Conference, 2004

## **PATENTS**

- United States Patent 5,263,308, Davis E. Lee, Peter M. Murphy, "Method for Ply-Twisting Yarns Having Low Levels of Finish", November 23, 1993
- United States Patent 5,239,019, Robert A. Halling, Davis E. Lee, Charles F. Palmer, Jr., "Modified Hydrophilic Polyesters", August 24, 1993
- United States Patent 6,367,109, Arlen Besel, Davis E. Lee, "Floor Cleaning Apparatus Having a Floating Brush." April 9, 2002.

HT Than

202-363-3490



# SWZ, LLC

February 26, 2002

Dr. Davis E. Lee  
Director  
New Business Development  
SI Flooring Systems  
Calhoun, GA 30703-1118

Dear Davis,

Bill Spencer, Dick Lacy and I would like to thank you for your hospitality and interest during our visit on February 7 and 8, 2002. We are very encouraged regarding the prospects of cooperation between SI and SWZ on novel Flooring Products.

We also thank you for signing the Mutual Non-Disclosure Agreement of 02/08/02. To comply with conditions of the Agreement I am enclosing an extra copy of our 12 page presentation of February 8, 2002 in which the (5) SWZ, LLC proprietary technologies are detailed on Pages 5, 6 and 7, and described as:

1. Thermoplastically Laminated Fibrous Layers
2. 3D Multi-layer Color
3. Optimized Backing Systems
4. Shrink Bulked Backings
5. Hook-Pin Holding Package

Please let us know how we can be of further assistance. Please do not hesitate to call or E-mail regarding any questions at any time.

Best regards,

Dimitri Zafiroglu  
Technology, SWZ, LLC

**SWZ, LLC**

**“C-21 RESILIENT FLOORING”**

**SWZ, LLC**

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**CONFIDENTIAL PRESENTATION  
TO  
SYNTHETIC INDUSTRIES**

**FEBRUARY 8, 2002**

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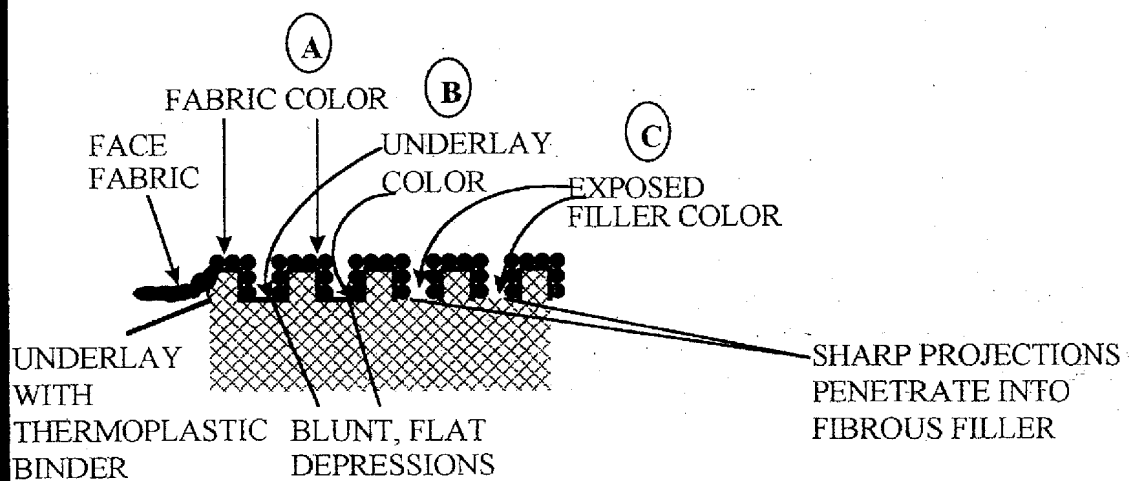
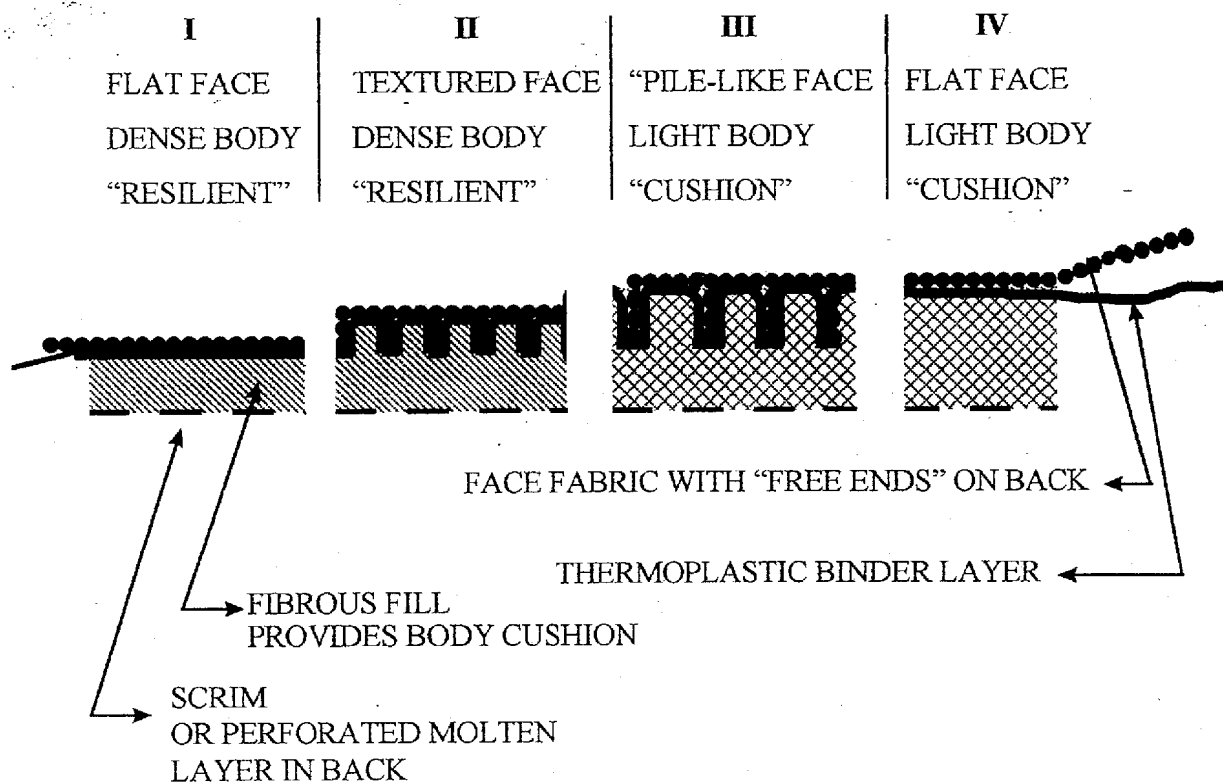
(12) Pages Total. All Rights to Concepts Disclosed  
Herein Reserved as Intellectual Property of SWZ, LLC  
109 Perry Street, Petersburg, VA.



## **INTRODUCTION**

- SWZ, LLC PRESENTING PROPRIETARY TECHNOLOGY OPTIONS WITH POTENTIAL IN FLOORCOVERINGS, AUTO, WALLS, UPHOLSTERY, ETC.
- INCLUDES AT LEAST FIVE INDIVIDUALLY PATENTABLE PRODUCTS/PROCESSES. SWZ PREPARING APPLICATIONS COVERING THESE AND OTHER END USES. (BACKINGS, UNDERLAYS, CUSHIONS).....
- NEEDS, WISHES OF SYNTHETIC INDUSTRIES NOT KNOWN. ASSUMING PRIMARY INTEREST IN "RESILIENT FLOORING"
- OPTIONS TO COOPERATE OPEN TO DISCUSSION

## PRODUCT OPTIONS



**MULTI-LAYER COLORING**

## PRODUCT FEATURES

### "C-21" "SOLENIUM" "METAFLOR"

• "NEW LOOKS"	√	√	√
• "NEW TEXTURES"	√	X	√
• EASY CARE	√	√	?
• AVOIDS BACTERIA GROWTH	√	√	√
• "GREEN" (USES RECYCLE)	√	X	X
• "GREEN" (AVOIDS LATEX/SOLVENTS)	√	X	√
• "GREEN" (SAVES ENERGY)	√	√	√
• COST COMPETITIVE VS TUFTED	√	?	√
• DEFENSIBLE TECHNOLOGY	√	√	√
• ADJUSTABLE SOFTNESS	√	?	X

## OPTIONS

• MOLDABILITY	√	X	X
• NON-FLOOR APPLICATIONS	√	?	X
• INTEGRATED BREATHING FLUID BARRIER	√	√	√
• INTEGRATED HOOK CATCHING	√	X	X

## **TECHNOLOGY ELEMENTS**

### **I) THERMOPLASTICALLY LAMINATED “FIBROUS” LAYERS.**

- “FREE” ENDS ON BACK OF FACE FABRIC
  - SANDED OR STAPLE-BASED WOVEN, KNIT NONWOVEN
- LOW-MELT BINDER SHEET
  - P.P. WASTE NONWOVEN, PETH FILM, ETC.
  - MAY BE INTEGRATED UNDER FACE FABRIC
- HOT-CALENDER OR PRESS-PLATEN BOND
- CONTROL BINDER PROPAGATION, PRODUCT DENSITY AND THICKNESS BY CONTROLLING TEMPERATURE, PRESSURE, GAP, TIME
- ANY 2-D OR 3-D PATTERN FROM PLATEN OR ROLLS ON FACE AND/OR BACK

**TECHNOLOGY ELEMENTS**

**2) 3D MULTILAYER COLOR**

- BLUNT PROJECTIONS IN RECESSED AREAS MELT BINDER, WET THROUGH FACE LAYER, SHOW DARK BINDER/SUBLAYER COLOR. (COLOR-2)
- SHARP PROJECTIONS PENETRATE INTO FIBROUS FILLER BODY, EXPOSE ITS COLOR (COLOR-3)

**3) OPTIMIZED BACKING SYTEMS**

- CARDED OR AIRLAID VIRGIN OR CARPET RECLAIM BLENDS (NYLON/PP, PET/PP ETC.)
  - SHORTER HIGH DENIER FIBERS ALIGNED VERTICALLY DURING NEEDLE PUNCHING, PROVIDE CUSHION, RESILIENCE
  - FINER, LONGER FIBERS PROVIDE EVEN SURFACE IN FRONT.
- OPTION TO ADD CARD-WEBS, SCRIMS ABOVE OR BELOW

**TECHNOLOGY ELEMENTS**

**4) SHRINK-BULKED BACKINGS**

- NYLON/PP OR PET/PP BLENDS “FREE-SHRINK” ~15-20% WITH HEAT, GAIN 50-75% BULK AND RESILIENCE DURING AIR BONDING
- SHORT NYLON OR PET/LONG P.P. ESPECIALLY BENEFICIAL.
- ALSO MAKE SUPERIOR CUSHION STRUCTURES (CARPET UNDERLAYS, SEAT OR APPAREL LINERS....ETC)

**5) HOOK, PIN HOLDING BACKFACE**

- PERFORATED BOTTOM WITH LOW DENSITY INTERIOR ALLOWS PENETRATION, HOLDS HOOKS, PINS.
- ATTACH WOVEN-POLY SCRIM OR PENETRATE MOLTEN-BINDER LAYER

**SUMMARY**

- TECHNOLOGY IN EARLY STAGES, REQUIRES DEVELOPMENT, PATENT FILING THROUGH 2002.
- VERSATILE, EXTENT OF APPLICATIONS TO BE DETERMINED IN 2002
- ECONOMICS FAVORABLE (SEE APPENDICES, PAGES 9-12)
- FUNDING DECISIONS NEEDED TO PROCEED

**SWZ, LLC**

**PRELIMINARY ECONOMICS**

REDACTED



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**PRELIMINARY ECONOMICS**

REDACTED